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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/648,560	08/25/2003	Terence Edwin Dodgson	678-1243	5160

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THE FARRELL LAW FIRM, LLP
290 Broadhollow Road
Suite 210E
Melville, NY 11747

EXAMINER	
HA, DAC V	

ART UNIT	PAPER NUMBER
2611	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/648,560	DODGSON ET AL.	
	Examiner	Art Unit	
	Dac V. Ha	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 May 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-8,11 and 13-18* is/are rejected.

7)☒ Claim(s) *5, 9, 10, 12* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05/25/03* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is a result of the decision on appeal by the board of patent appeals and interferences.

Claim Objections

2. Claims 9-10 are objected to because of the following informalities:

Claim 9, the domain for “n”, “m”, "p” should be defined (i.e. integers).

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 1, 2, 17, 18** are rejected under 35 U.S.C. 102(b) as being anticipated by Needham et al. (US 5,764,699).

Re claim 1, Needham discloses the claimed subject matter “A modulating device for modulating and demodulating data for transmission from a first device to a second device, comprising modulating means capable of modulating and demodulating the data according to at least a first and a second modulation technique using common digital modulation components, and a switching means for automatically switching between at least the first and the second modulation techniques” in Abstract; col. 2,lines 48-50, 61-67; col. 4, lines 15-21, 33-46; col. 5, lines 4-22; col. 6, lines 7-60; Fig. 2 as follows.

Needham discloses a two-way communication unit capable of modulating and demodulating using a plurality of modulation techniques. The DSP (Fig. 2, element 205) teaches the “common digital modulation component” where appropriate modulation technique is selected for use. The DSP also teaches the "switching means” where another subsequent modulation technique is automatically selected for use based on, for example, signal quality of the received signal.

Re claims 17, 18, see corresponding apparatus claim 1 above.

Re claim 2, Needham further discloses the claimed subject matter “a plurality of building blocks, wherein at least one of said building blocks is used for at least one of modulating and demodulating data according to said at least first and second modulation techniques” in Fig. 1, 2, all element s; col. 4, lines 37-46; wherein “block” 100 teaches the “at least one of modulating and demodulating data according to said at least first and second modulation techniques”.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. **Claim 11** is rejected under 35 U.S.C. 103(a) as being unpatentable over Needham in view of Scarpa et al. (US 5,673,293) (hereafter Scarpa) .

Re claim 11, Needham discloses almost all claimed subject matter in claim 11, as stated above, except for "further comprising timing means adjustable to a first

clocking time used for modulating and demodulating data according to said first modulation technique and a second clocking time used for modulating and demodulating data according to said second modulation technique".

Scarpa, in the same field of endeavor, discloses claimed subject matter “timing means adjustable to a first clocking time used for modulating and demodulating data according to said first modulation technique and a second clocking time used for modulating and demodulating data according to said second modulation technique” in col. 15, lines 30-56.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention, at least to try, to incorporate the teaching of “timing means adjustable to a first clocking time used for modulating and demodulating data according to said first modulation technique and a second clocking time used for modulating and demodulating data according to said second modulation technique” in Scarpa into Needham so as to exploit the support of plural modulation techniques to include joint QAM/VSB demodulation and predictable result would have been expected.

7. **Claims 15-16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Needham in view of Piirainen (US 6,553,079).

Re claim 15, Needham discloses almost all claimed subject matter of claim 14, as stated above. Needham further discloses “Quadrature Phase Shift Keying (QPSK)” in col. 4, line 21. Needham differs from the claimed invention in that Needham does not discloses “Gaussian Frequency Shift Keying (GFSK)”. Piirainen, in the same field of

endeavor, discloses that is known in the art that GFSK is one of modulation technique could be supported in a multiple modulation techniques system (col. 1, line 25-58). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate a GFSK modulation technique, as taught by Piirainen, into Needham, as one of the selectable modulation techniques, and predictable result would have been expected.

Re claim 16, see claim 15 above, where GFSK is a frequency modulation technique.

8. **Claim 14** is rejected under 35 U.S.C. 103(a) as being unpatentable over Needham in view of Piirainen and Chao et al. (US 7,298,798) (hereafter Chao).

Re claim 14, Needham discloses almost all claimed subject matter of claim 14, as stated above. Needham differs from the claimed invention in that Needham does not discloses "wherein said first and second modulation techniques are Complementary Code Keying (CCK) with Differential Quadrature Phase Shift Keying (DQPSK) (CCK+DQPSK) and Gaussian Frequency Shift Keying (GFSK) modulation techniques".

Piirainen, in the same field of endeavor, discloses that is known in the art that GFSK is one of modulation technique could be supported in a multiple modulation techniques system (col. 1, line 25-58).

Chao discloses the use of CCK + DQPSK is not unknown in the art of modulation (Abstract; col. 3, line 31 to col. 4, line 7).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate the known GFSK modulation technique, as taught by Piirainen and CCK + DQPSK, taught by Chao, into Needham, as the selectable modulation techniques, and predictable result would have been expected.

9. **Claims 3, 4, 7, 8 ,13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Needham in view of Scarpa and Sakoda et al. (US 6,882,618) (hereafter Sakoda).

Re claim 3, Needham discloses almost all claimed subject matter in claim 3, as stated above. Needham further discloses “a look-up table" in col. 3, line 65 to col. 6, line 1.

Needham differs from the claimed invention in that Needham does not discloses “a programmable finite impulse response filter” and “a serial-to-parallel converter”.

Scarpa discloses “a programmable finite impulse response filter” in col. 14, line 38 to col. 15, line 2.

Sakoda discloses a “serial-to-parallel converter" in col. 17, lines 54-55.

Both Scarpa and Sakoda disclose communication systems that support different modulation techniques. Needham also supports plural modulation techniques. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention, at least to try, to incorporate the use of a finite impulse response filter of Scarpa and a serial-to-parallel converter of Sakoda into the receiver and transmitter, respectively, of radio unit of Needham so as to exploit the support of plural modulation

techniques to include joint QAM/VSB demodulation and/or OFDM and predictable result would have been expected.

Re claim 4, Scarpa further discloses the claimed subject matter “wherein said programmable finite impulse response filter is programmable to a first and a second mode for said first and second modulation techniques, respectively” in col. 14, lines 38-65.

Re claim 7, Scarpa further discloses “wherein said programmable finite impulse response filter is adaptable by varying its weights" in col. 14, lines 51-54; col. 4, lines 65-67.

Re claim 8, Needham further discloses “said look-up table includes data related to said first and second modulation techniques” in col. 3, line 65 to col. 4, line 10.

Re claim 13, Needham further discloses “wherein said modulation means automatically switches between said first and second modes” in col. 2, lines 48-51; col. 4, lines 34-51; col. 5, lines 1 to col. 6, line 60; wherein the first transmission, for example, teaches a first mode and a subsequent transmission teaches a second mode.

10. **Claim 6** is rejected under 35 U.S.C. 103(a) as being unpatentable over combination of Needham, Scarpa and Sakoda as applied to claim 4 above, and further in view of Lane et al. (US 5,648,923) (hereafter Lane).

Re claim 6, the aforementioned combination teach almost all claimed subject matter in claim 6, as stated above, except for "wherein said programmable finite impulse response filter is used as matched filter in the second mode”.

Lane discloses a Nyquist filter used as Nyquist/matched filter for a joint VSB/QAM demodulator in col. 1, lines 36-45.

Therefore, it would have been obvious to a person or ordinary skill in the art at the time of the invention to incorporate the Nyquist/matched filter, taught by Lane, into the aforementioned combination, particularly Scarpar, and predictable result would have been expected. Note, in this case, the VSB mode is considered "the second mode".

Allowable Subject Matter

11. Claims 5, 9, 10, 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dac V. Ha whose telephone number is 571-272-3040. The examiner can normally be reached on 4/4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on 571-272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dac V. Ha/
Primary Examiner, Art Unit 2611